

In the Claims:

1. (Currently amended) A radiation-emitting semiconductor component, having

- a layer structure (12) which includes at least one photon-emitting active zone (16) arranged between a cladding layer (14) that is n-conductively doped and a cladding layer (18) that is p-conductively doped,
- an n-type contact connected to the cladding layer (14) that is n-conductively doped, and
- a mirror layer (20) arranged on the side, facing away from the active zone (16), of the cladding layer (18) that is p-conductively doped,

characterized in that wherein

the mirror layer (20) is formed by an alloy of silver ~~with~~ comprising one or more metals selected from the group consisting of Ru, Os, Ir, Cu, Ti, Ta and Cr.

2. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 1, ~~characterized in that~~ wherein the mirror layer (20) is formed by an alloy of silver ~~with~~ comprises one or more metals selected from the group consisting of Ru, Rh, Pd, Au, Os, Ir, Pt and one or more metals selected from the group consisting of Cu, Ti, Ta, Cr.

3. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 1, ~~characterized in that~~ wherein the mirror layer (20) is formed by a ~~ternary~~ an alloy of silver ~~with~~ comprising a metal selected from the group consisting of

Ru, Rh, Pd, Au, Os, Ir, Pt and one or more metals selected from the group consisting of Cu, Ti, Ta, Cr.

4. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 1, ~~characterized in that~~ wherein the mirror layer (20) is formed by a ~~ternary~~ an alloy of silver ~~with~~ comprising one or more metals selected from the group consisting of Ru, Rh, Pd, Au, Os, Ir, Pt and a metal selected from the group consisting of Cu, Ti, Ta, Cr.

5. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 1, ~~characterized in that~~ wherein the mirror layer (20) is formed by a ~~ternary~~ an alloy of silver ~~with~~ comprising a metal selected from the group consisting of Ru, Rh, Pd, Au, Os, Ir, Pt and a metal selected from the group consisting of Cu, Ti, Ta, Cr.

6. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 1, ~~characterized in that~~ wherein the mirror layer (20) is formed by an Ag-Pt-Cu alloy.

7. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 1, wherein ~~one of the preceding claims, characterized in that~~ the alloy of the mirror layer (20), in addition to silver, comprises a total of 0.1% by weight to 15% by weight, ~~preferably 1% by weight to 5% by weight, of the abovementioned~~ said metals.

8. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 2, ~~one of claims 2 to 5, characterized in that~~ wherein the alloy of the mirror layer (20), in addition to silver, comprises 0.5 to 5% by weight of one or more metals selected from the group consisting of Ru, Rh, Pd, Au, Os, Ir, Pt and 0.5 to 5% by weight of one or more metals selected from the group consisting of Cu, Ti, Ta, Cr.

9. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 6, ~~characterized in that~~ wherein the alloy of the silver layer (20), in addition to silver, comprises 1 to 3% by weight of platinum and 1 to 3% by weight of copper.

10. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 1, ~~one of the preceding claims, characterized in that~~ wherein the mirror layer (20) forms an ohmic contact either with the cladding layer (18) that is p-conductively doped or with a further semiconductor layer that is p-conductively doped and is arranged between the mirror layer and the cladding layer (18) that is p-conductively doped.

11. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 1, wherein ~~one of the preceding claims, characterized in that~~ the layer structure (12) is based on nitride III-V compound semiconductor material.

12. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 11, ~~characterized in that~~ wherein the layer structure (12) is based on InGaAlN.

13. (Currently amended) .The radiation-emitting semiconductor component as claimed in claim 1, wherein ~~one of claims 1 to 10, characterized in that~~ the layer structure (12) is based on phosphide III-V compound semiconductor material.

14. (Currently amended) The radiation-emitting semiconductor component as claimed in claim 13, ~~characterized in that~~ wherein the layer structure (12) is based on InGaAlP.

15. (New) The radiation-emitting semiconductor component as claimed in claim 1, wherein the alloy of the mirror layer (20), in addition to silver, comprises a total of 1% by weight to 5% by weight of said metals.

16. (New) The radiation-emitting semiconductor component as claimed in claim 1, wherein the mirror layer comprises a ternary alloy of silver.